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A. H. PHILLIPS ET AL
MANIFOLDING ASSEMBLY

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Fig. 3.

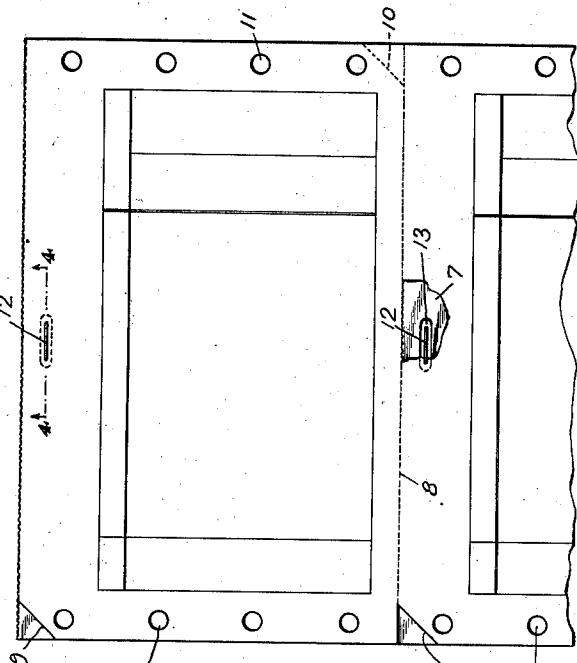


Fig. 1.

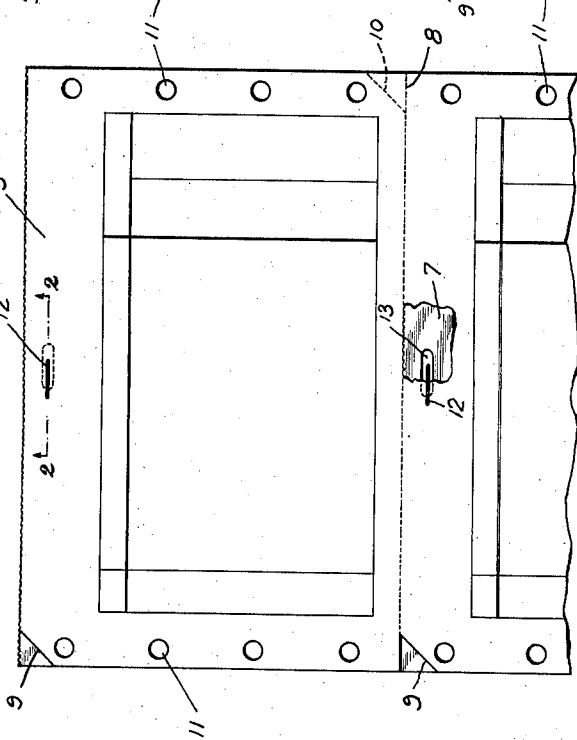


Fig. 4.

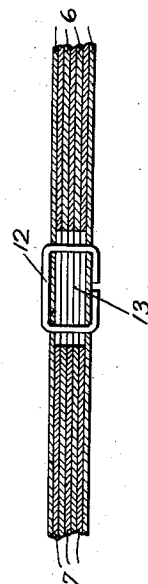
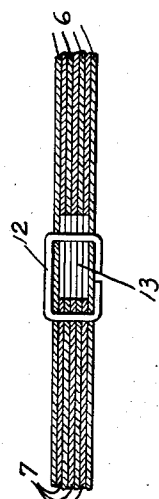


Fig. 2.



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UNITED STATES PATENT OFFICE

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MANIFOLDING ASSEMBLY

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Application January 17, 1931, Serial No. 509,304

3 Claims. (Cl. 282—12)

This invention relates to improvements in manifolding or record assemblies of the long continuous traveller type embodying record and transfer layers or strips arranged in interleaved transfer relation with each other, and with reference to more particular features thereof the invention relates to a manifolding assembly of the class mentioned adapted for use in connection with various forms of writing machines such as typewriters, autographic registers, billing machines, teletypewriters and the like.

Record assemblies of the nature referred to ordinarily include two or more long continuous record strips of the traveller type interleaved with which is a long continuous traveller carbon or transfer strip for each carbon copy desired. The manifolding assembly is ordinarily provided with transverse weakened severance lines arranged in both the record and transfer strips and longitudinally spaced at intervals along the assembly which may be reversely folded along these transverse lines into a flat zig-zag pack or supply which is convenient for handling and for loading into the various machines for use therein.

It is a general object of the invention to provide an improved manifolding assembly of the class mentioned which is well adapted for use in the different classes of machines mentioned and which may be readily manipulated and the record leaves of a severed set of leaves readily separated from the transfer leaves thereof with a minimum of time and effort and without the necessity of the use of any particular apparatus.

A further object of the invention is to provide an improved manifolding assembly of the class mentioned which is especially well adapted to maintain the record and transfer strips against undue relative movements and which will not interfere with the passage of the assembly through the machine or otherwise interfere with the use of the assembly in actual practice.

A still further object is that of furnishing a record assembly in which the coupling of the interleaved record and transfer strips is accomplished by an expedient capable of embodiment in the record with minimum expense.

Other objects of the invention will be in part pointed out in the following detailed description of certain illustrative but preferred embodiments of the invention, and will be in part obvious in connection therewith.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described

and the scope of the application of which will be indicated in the claims.

For a comprehensive disclosure of the nature and objects of the invention reference is had to the following detailed description and to the accompanying drawing in which:

Fig. 1 is a plan view of a fragment of a manifolding assembly embodying the invention;

Fig. 2 is an enlarged transverse sectional view taken along the lines 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1 but showing a slightly different form of construction; and

Fig. 4 is a view taken along the lines 4—4 looking in the direction of the arrows of Fig. 3.

In these views a pack or form sheet assembly includes record receiving sheets or layers 6 and interposed copying layers or strips 7. Each pack is segregated from adjacent packs by lines of fold which extend transversely of the record body and which are additionally defined preferably by transverse rows of perforations 8 which may be coincident with the fold lines and serve to permit of the ready severance of the pack from the record with or without the assistance of a tearing bar.

It will be understood that with the pack 5 of leaves separated from the complete record assembly, it is necessary to segregate or strip the inscribed record sheets from the carbon or transfer sheets and to do this it is preferred to form each of these sheet packs or sets with selective grip formations including the grip escaping apertures 9 and 10 positioned marginally of the set and spaced apart a suitable distance as shown. The notches or apertures 9 are located only in the record sheets while the apertures 10 are located only in the carbon sheets. By means of these selective grip formations the record sheets may be selectively gripped in line with the apertures 10 and the transfer sheets may be selectively gripped in line with the apertures 9. Whereupon the record sheets may be quickly and easily separated or stripped from the transfer sheets at a single operation merely by pulling in opposite directions.

Additionally, if it is desired to employ a record construction in accordance with the present invention in a teletype apparatus, it is understood that this apparatus ordinarily embodies a retaining and feeding expedient such as a pair of toothed wheels which cooperate with the record. To this end and as has been shown in Fig. 1, the record may provide adjacent its side edges a series of feed perforations 11.

The sheets of a pack may be secured together

in the assembly both before and after severance of a pack along the weakened lines 8 by fastening means such as rivets, stitching, or the staples 12 herein disclosed or by other well known fastening means.

In any event as shown in all of the figures, the top and bottom sheets of the pack have the fastening element transfixing and passing through them while the intervening sheets as shown in Figs. 3 and 4 are formed with aligned apertures 13 of sufficient area to amply accommodate the staple. For the purpose of illustration, the aperture has been shown as of an area materially greater than that of the staple, but it will be appreciated that the size of this aperture might be reduced materially so that it would just snugly accommodate the staple.

The structure of Figs. 3 and 4 just referred to is advantageous because it permits slight relative longitudinal adjustment of the record and transfer strips or layers, thus functioning to avoid undue wrinkling or bulging and similar irregularities in the strips which might otherwise be caused by stresses set up in the individual strips incident to folding them or to unfolding them after having once been folded, or to passage thereof about a cylindrical platen or other curved surface. Clear, legible, manifolding copies and general operating satisfaction are thus promoted by this arrangement. It will be observed that the arrangement of the fastener 12 of Fig. 4 provides a positive connection thereof with the outside sheets and an impositive or movable connection with the intermediate sheets by virtue of the apertures 13. Also, the fasteners 12 in both embodiments positively engage or contact the outer surfaces of the outer sheets so that separation of the sheets away from each other laterally or at an angle to their planes is resisted by virtue of this engagement. The part of each of the outer sheets thus contacting with the fastener may be termed a securing key and is positioned normally in alignment with the apertures 13. This securing key is frangible so as to be severed or torn when sufficient pressure is exerted thereon against the fastener as when the outer sheets are pulled away from the others. Since as shown in Fig. 4 the apertures 13 are large enough to permit bodily passage of the fastener 12, the tearing or severance of the frangible key of either the upper or the lower sheet will release the fastener to free passage through the aperture 13 thus releasing all of the strips from attachment with each other.

With the staple in position, it will be obvious that any considerable displacement of the sheets will be prevented and the latter may be handled as a unit, the top and bottom sheets serving virtually as backing for the intervening sheets. When it is desired to separate these sheets, an operator by simply exerting a pull upon the top or bottom sheet or both will serve to tear through one or both of these sheets, the staple thereupon dropping clear of the aperture. In this connection, it is to be understood that the aperture serves a further purpose since it "frames" that portion of the top or bottom sheet which is torn incident to the separation, and thus there is prevented any tendency of the tearing to extend materially within the body of the sheet with danger of mutilation or destruction of the record.

In certain instances, it is desirable to have the staple more firmly anchored to the sheets disposed between the top and bottom leaves of the pack. To this end and as shown in Fig. 2,

the aperture may be sufficiently constricted or the staple may be offset so that one leg of the same transfixes and passes through the bodies of the intervening sheets to one side of the aperture, thus achieving the results desired. It will be understood that while the present invention has been disclosed particularly in conjunction with a record of the separate strip type, yet it lends itself ideally for use with the records of various other types as for example fanfold.

From the foregoing, it will be seen that among other objects, the several objects mentioned will be achieved. It will moreover be understood that numerous changes in construction and rearrangement of the parts might be resorted to without departing from the spirit of the invention as defined by the claims.

Having described our invention, what we claim as new and desire to secure by Letters Patent, is:

1. In a manifolding assembly, in combination, a plurality of continuous record layers and at least one continuous transfer layer arranged in superposed manifolding relation with each other and having longitudinally spaced transverse severance lines dividing the assembly into a longitudinal series of record packs of interleaved record and transfer leaves, the intermediate layer or layers of the assembly having longitudinally spaced apertures inwardly spaced from the opposite longitudinal assembly edges, one of said apertures of each apertured layer being positioned in each of said record packs, said apertures being spaced from the respective adjacent said severance lines but lying close to the latter, the outer assembly layers having frangible parts or keys respectively overlapping said apertures, a layer fastening device for each of said record packs respectively transfixing said keys of the outer layers so as to positively engage the latter, each of said fastening devices including a part smaller than the respective receiving aperture and extending through the latter, and each of said fastening devices having also a part transfixing the intermediate layer or layers at a part thereof spaced from but adjacent to said aperture.

2. In a manifolding assembly, in combination, a plurality of continuous record layers and at least one continuous transfer layer arranged in superposed manifolding relation with each other and having longitudinally spaced transverse severance lines dividing the assembly into a longitudinal series of record packs of interleaved record and transfer leaves, the intermediate layer or layers of the assembly having longitudinally spaced apertures inwardly spaced from the opposite longitudinal assembly edges, one of said apertures of each apertured layer being positioned in each of said record packs, said apertures being spaced from the respective adjacent said severance lines but lying close to the latter, the outer assembly layers having frangible parts or keys respectively overlapping said apertures, a layer fastening device for each of said record packs respectively transfixing said keys of the outer layers so as to positively engage the latter, each of said fastening devices including a part smaller than the respective receiving aperture and extending through the latter, and each of said fastening devices having also a part transfixing the intermediate layer or layers at a part thereof spaced from but adjacent to said aperture, and marginal selective grip formations spaced apart in each of said record packs whereby the record and transfer leaves may be selectively gripped for separat-

ing them from each other and from their attachment in the pack.

3. In a manifolding assembly, in combination, a plurality of continuous record layers and at least one continuous transfer layer arranged in superposed manifolding relation with each other and having longitudinally spaced transverse severance lines dividing the assembly into a longitudinal series of record packs of interleaved record and transfer leaves, the intermediate layer or layers of the assembly having longitudinally spaced apertures inwardly spaced from the opposite longitudinal assembly edges; one of said apertures of each apertured layer being positioned in each of said record packs, said apertures being spaced from the respective adjacent said severance lines but lying close to the latter, the outer assembly layers having integral parts or keys re-

spectively overlapping said apertures, a layer fastening device for each of said record packs respectively positively connected to said keys of the outer layers, each of said fastening devices including a part smaller than the respective receiving aperture and extending through the latter, a marginal selective grip formation in each of said record packs whereby the record leaves thereof may be selectively gripped to the exclusion of the transfer leaves, and a selective grip formation in each of said record packs spaced from said first mentioned grip formation of each respective pack whereby the transfer leaves may be selectively gripped to the exclusion of the record leaves.

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